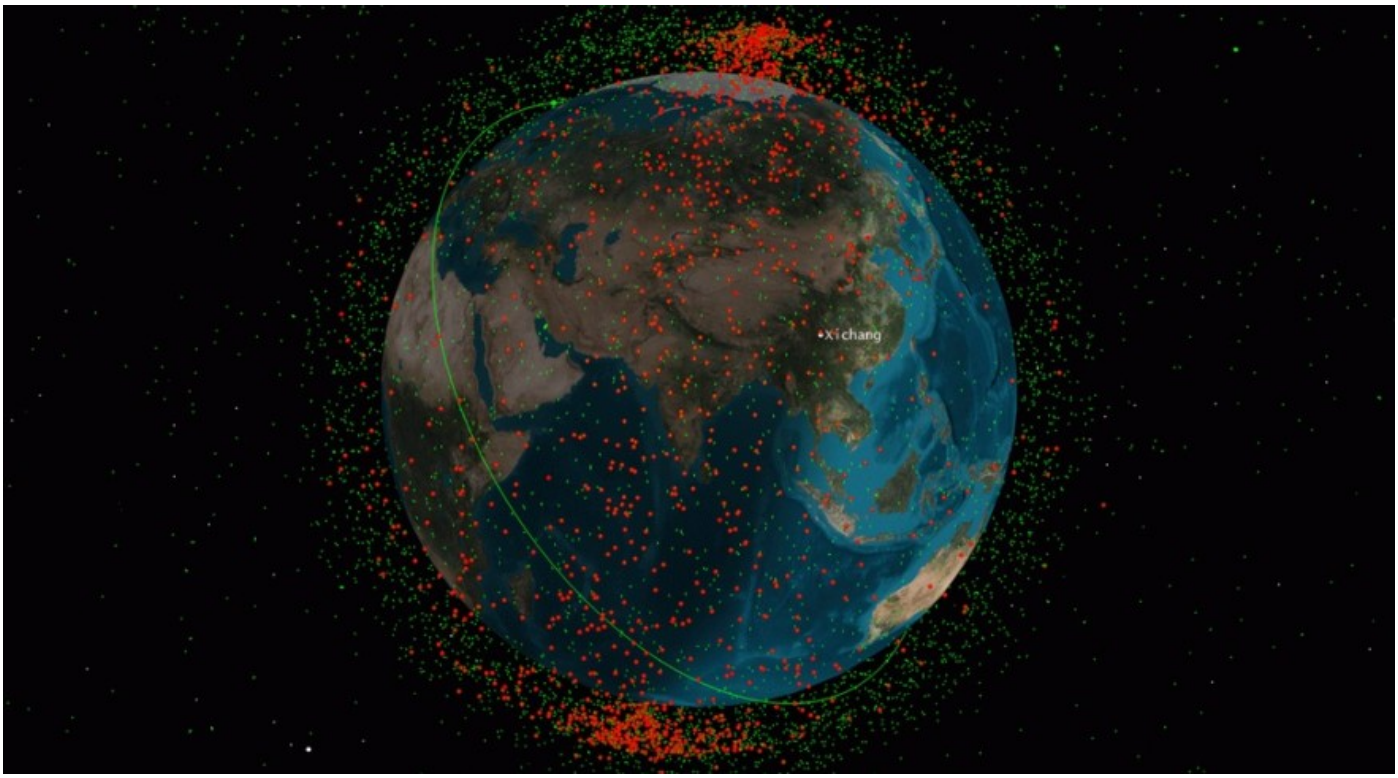
Russia destroys satellite in ASAT test

Jeff Foust November 15, 2021



The Russian ASAT test destroying Cosmos-1408 drew comparisons to a 2007 Chinese ASAT test that created thousands of pieces of debris still being tracked today. Credit: AGI

Updated 6:20 p.m. Eastern with NASA statement.

LAS VEGAS — A Russian satellite broke up in low Earth orbit in a deliberate test of a Russian antisatellite device that created thousands of pieces of debris.

The satellite, Cosmos-1408, appears to have broken up late Nov. 14 or early Nov. 15 Eastern time, based on commercial and government tracking data. The satellite, weighing about 2,000 kilograms, was launched in 1982 and, now defunct, was last tracked in an orbit about 485 kilometers high.

State Department spokesman Ned Price confirmed the satellite was destroyed

by an ASAT. "The Russian Federation recklessly conducted a destructive satellite test of a direct-ascent antisatellite missile against one of its own satellites," he said at a Nov. 15 State Department briefing. "The test has so far generated over 1,500 pieces of trackable orbital debris and hundreds of thousands of pieces of smaller orbital debris that now threaten the interests of all nations."

He added that the test "will significantly increase the risk to astronauts and cosmonauts on the International Space Station, as well as to other human spaceflight activities."

Early Nov. 15, the seven people on the ISS were instructed to shelter in their Crew Dragon and Soyuz vehicles because of a "debris cloud," remaining in their vehicles for about two hours. That debris cloud has since made several other close approaches to the station, although no damage was reported. The station's crew resumed some operations later in the day although parts of the station remain sealed off as a precaution against any impacts.

Hours after the State Department announced the Russian ASAT test, NASA confirmed in a separate statement that it was the debris from that event that required the crew to shelter earlier in the day.

"Like Secretary [of State Antony] Blinken, I'm outraged by this irresponsible and destabilizing action," NASA Administrator Bill Nelson said in the statement. "With its long and storied history in human spaceflight, it is unthinkable that Russia would endanger not only the American and international partner astronauts on the ISS, but also their own cosmonauts." The debris, he added, also threatens China's space station.

"Russia's dangerous and irresponsible behavior jeopardizes the long-term sustainability of outer space and clearly demonstrates that Russia's claims of opposing the weaponization of space are disingenuous and hypocritical,"

Price said.

Asked later if the United States would file a formal diplomatic protest, Price said the U.S. has "spoken to senior Russian officials multiple times to warn them of the irresponsibility and dangerousness of such a test." He declined to comment on any "specific measures" the United States government or those of allies would take in response to the test.

"Russia has demonstrated a deliberate disregard for the security, safety, stability and long-term sustainability of the space domain for all nations," Gen. James Dickinson, commander of U.S. Space Command, said in a Nov. 15 statement. "Russia's tests of direct-ascent anti-satellite weapons clearly demonstrate that Russia continues to pursue counterspace weapon systems that undermine strategic stability and pose a threat to all nations."

The British government also spoke out against the test. "This destructive anti-satellite missile test by Russia shows a complete disregard for the security, safety and sustainability of space," said Defence Secretary Ben Wallace in a statement. "The debris resulting from this test will remain in orbit putting satellites and human spaceflight at risk for years to come."

Before the State Department statement, there was widespread speculation that Cosmos-1408 was the victim of an ASAT test, particularly given notices to airmen filed by Russians for a rocket launch from Plesetsk consistent with a direct-ascent ASAT test.

"We are tracking this Cosmos-1408 event. Where there used to be one satellite, we now see six radar detections, which could be individual objects, debris or clouds of debris," said Dan Ceperley, chief executive of LeoLabs, a few hours before the State Department statement. The company later said it was seeing at least 30 distinct objects.

He later said that his company's ground-based radars had been tracking Cosmos-1408 as a single object three times a day until detecting multiple objects at 11:20 a.m. Eastern Nov. 15, suggesting that the object broke up within the last day.

Ceperley was speaking on a panel about space domain awareness at the ASCEND conference by the American Institute of Aeronautics and Astronautics here Nov. 15. Other panelists also weighed in, calling the incident "unfortunate" by increasing the population of debris in LEO.

"We had the Chinese ASAT in 2007. That's been our nemesis for an extended period of time. It looks like now we have another one of these. This is not what we need to do," said Bill Gerstenmaier, vice president of build and flight reliability at SpaceX and the former longtime head of NASA's human spaceflight programs.

That 2007 Chinese ASAT test created debris that continues to be a hazard for the satellites and the International Space Station. Last week, the station performed a debris avoidance maneuver when one piece of debris from that test showed a risk of passing close to the station. While the risk diminished before the time of closest approach, NASA and the other ISS partners elected to go ahead with the maneuver in place of a reboost maneuver originally planned for later this month.